US Army Corps
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HTRW CX

HTRW UPDATE
Cost Engineering Steering Committee
San Diego, CA
09-11 December 2003

HTRW CX - Cost Engineering
Omaha, NE

http://www.environmental.usace.army.mil/info/technical/cost/cost.html

HTRW CX - Cost Engineering Omaha, Nebraska

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HTRW Cost Engineering Resources

- HTRW Cost Engineering Regulations / Guidance
- HTRW Work Breakdown Structure(WBS)
- RACER
- MCACES
- Productivity Study

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HTRW Cost Engineering Resources

- Treatment, Storage, Disposal Facility Report
- CostRisk
- HTRW Area Cost Factors
- Guide to Developing Feasibility Study Cost Estimates
- Historical Cost Analysis System (HCAS)
- Remedial Action Report of Cost and Performance

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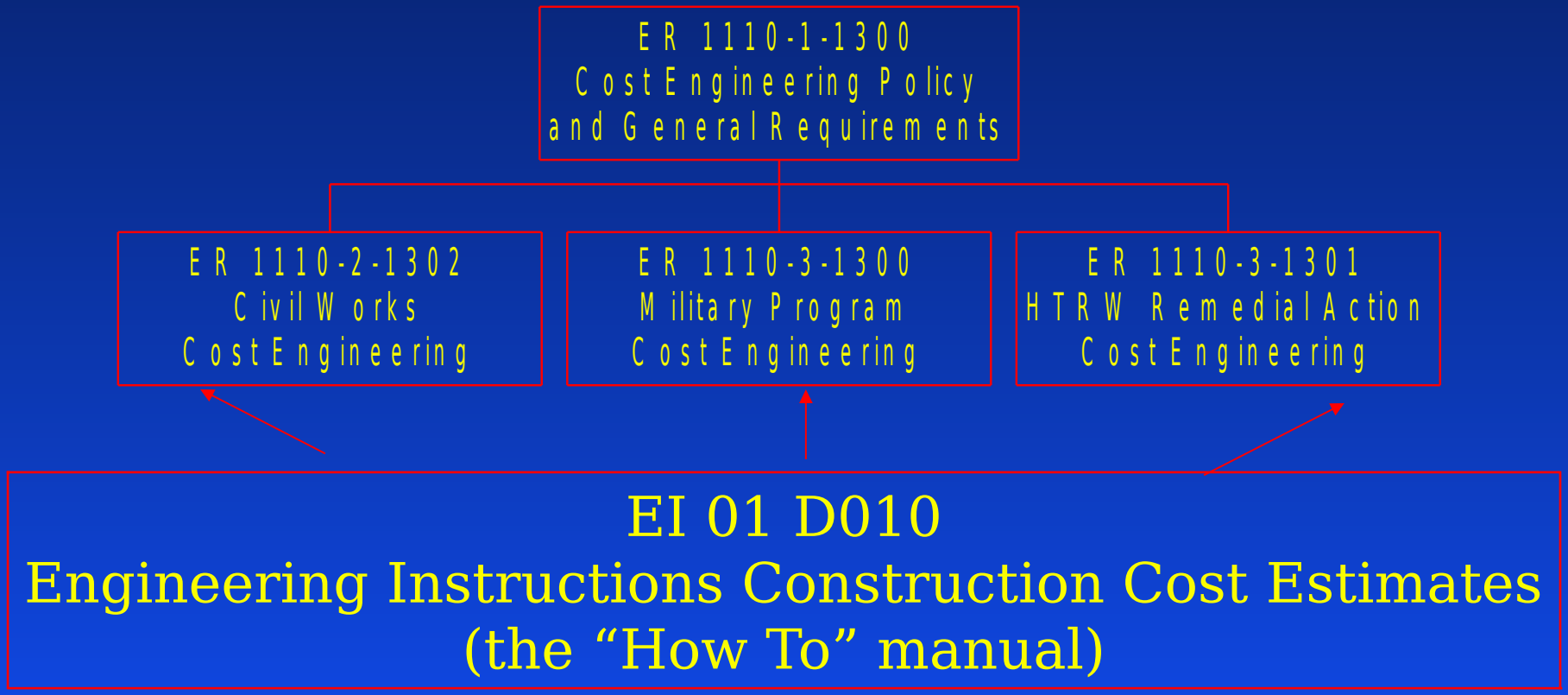
Cost Engineering Regulations/Guidance



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Cost Engineering Regulations/Guidance

- Defense Environmental Restoration Program (DERP) Manual
  - Provides guidance on the implementation of the Environmental Restoration Program
  - http://www.dtic.mil/envirodod/Policies/DERPMgt/DERP_MGT_GUIDANCE_0901.pdf
- Paragraph 15 of the guide:
  - Emphasizes the importance of developing reliable CTC estimates to support auditable financial statements.
  - These guidelines are also incorporated in the Formerly Used Defense Site Program (FUDS) manual.

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Cost Engineering Regulations/Guidance

- CTC (Cost To Complete) Estimates
  - Development of CTC estimates for the Formerly Used Defense Sites (FUDS) to support the Budget Estimate Submittal and the Annual Report to Congress
  - FUDS ER is currently being re-written and is scheduled to be released late this year, and will include CTC info
  - CTC Responsibilities and Instructions can currently be obtained at:
    - http://www.environmental.usace.army.mil/info/technical/cost/costpp/costpp.html

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WBS (Work Breakdown Structure)
HTRW RA and O&M

- Purpose
  - provides for consistent tracking of project cost data throughout the project life cycle
  - facilitates consistent collection of historical cost data
  - provides information for parametric estimating
- Applicability
  - USACE Cost Engineering Regulation - mandatory use to the 3rd level
  - all projects
  - all estimates
- http://www.environmental.usace.army.mil/info/technical/cost/costtool/costtool.html

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RACER

- Remedial Action Cost Engineering Requirements (RACER)
  - parametric cost estimating system that uses generic engineering solutions derived from historical project info., industry data, government labs, construction management agencies, vendors, contractors, and engineering analysis to accurately reflect today's remediation processes and pricing.
- RACER is a parametric cost estimating software
  - uses mathematical procedures where project parameters and cost algorithms directly yield consistent cost estimates
- http://earthtech.talpart.com/products/racer/index.html

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MCACES

- Unit Price Book
  - Developed and updated approximately 3,940 HTRW items in the 2001 UPB
- HTRW Databases in MCACES Gold
  - HTRW Facility Models (10 EA)
  - HTRW Task Models (17 EA)
  - HTRW Assemblies (626 EA)
  - HTRW Example Estimate
- MCACES Gold HTRW Databases available on TRACES website
  ftp://www.hnd.usace.army.mil/traces/HTRW/HTRW

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HTRW Remedial Action Productivity

- Productivity Study
  - Purpose - Provide a resource to estimate labor productivity for HTRW tasks
  - Analyzes and quantifies the loss of workers productivity considering level of PPE, work intensity, and temperature
  - Productivity factors have been developed which can be applied to traditional work productions at “clean” sites to establish production rates for work performed in HTRW work environments.
  - http://www.environmental.usace.army.mil/info/technical/cost/costprod/costprod.html

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Transportation Storage Disposal Facility Report

- Report on Treatment, Storage & Disposal Facilities for HTRW (TSDF Report) March 1998.
  - Identifies Off-site Commercial Hazardous Waste TSD Facilities
    - Includes Narrative, Locations, Contact Information, Fees and Unit Prices (when available), Land disposal restriction notification forms, waste profile information and Facility Brochures
  - Presents Information on State Taxes and Fees
  - Presents information on transportation unit prices
  - Discusses Low-level Radioactive waste disposal interstate compacts and fees.
  - CD: Contact HTRW CX for CD (includes unit prices)
  - Web site: (excludes unit prices) http://www.environmental.usace.army.mil/library/pubs/tsdf/tsdf.html

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CostRisk

- CostRisk
  - A risk analysis program using Monte Carlo simulation on cost elements that have high degree of uncertainty
    - To understand causes of risk in a cost estimate with regards to “scope risk” and /or “pricing risk”
    - To evaluate cost uncertainty in alternative design assumptions
  - Used to determine the amount of contingency needed to provide a certain amount of confidence level and thus, reducing risk of budgetary estimate over-run.
  - CostRisk Version 1.3 completed in October 2001
  - Currently updating CostRisk for RACER 2004/PACES 2003
  - ftp://www.hnd.usace.army.mil/TRACES/Cost_Risk/

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HTRW Area Cost Factors

- USACE developed HTRW Area Cost Factors for Dept of Energy
- Used HTRW Remedial Action (RA) Market Basket of Goods
  - From 10 MCACES models and 10 RACER models
  - 10 Materials, 8 Labor Types, 4 Equip Items
- Researched 29 DOE locations

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Cleanup Costs - Estimating During the Feasibility Study

- "A Guide to Developing and Documenting Cost Estimates During the Feasibility Study" (EPA 540-R-00-002, July 2000)
- Guidance Document - Can download from:
  - http://www.epa.gov/superfund/resources/remedy/costest.htm
  - http://www.hq.usace.army.mil/cemp/e/ec/ec-regs.htm#anchorER under the header "Environmental Cost Estimating Guide"

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Historical Cost Analysis System (HCAS)

Purpose

- Developed to Collect Historical Cost Data for HTRW Environmental Cleanups
- For HTRW RA/O&M Cost Reporting
- Provide a Standardized Historical Cost Database for HTRW Projects
- Useful Cost Data for Developing HTRW Budgeting or Programming Estimates
- Useful for Cost Benchmarking and Comparisons of HTRW Costs
- Adjusting Parametric Cost Models

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Historical Cost Analysis System (HCAS)

- HCAS 3.1 Software available on the HTRW CX web site
  - http://www.environmental.usace.army.mil/ec2/
- Table of Unit Cost Ranges
- Training materials
- 80 projects in database with Remedial Action costs
- Need more data from districts – HTRW CX is currently planning to visit 10 districts to collect data
- HCAS Data also from RA Cost and Performance Reports

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"Guide to Preparing and Reviewing Remedial Action Reports of Cost and Performance"

- Corps Version : EP 1110-1-19
- EPA Version also
- Completed June 2001
- Goals of the RA Report
  - Confirm that the remedy outlined in the ROD has been fully implemented
  - Confirm that cleanup goals have been achieved
  - Document key observations and lessons learned
  - Summarize Cost and Performance
- Document can be downloaded from
  - http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep1110-1-19/toc.htm

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HTRW Cost Engrg - Internet Resources

- HTRW Cost Engr ER - http://www.usace.army.mil/inet/usace-docs/eng-regs/er1110-3-1301/toc.htm
- The Environmental Bulletin http://www.environmental.usace.army.mil/info/technical/cost/costpp/costpp.html
  - The Environmental Bulletin explains the cost engineering capabilities throughout the entire Corps of Engineers and briefly explains the HTRW CX cost initiatives.
- HTRW WBS http://www.hq.usace.army.mil/cemp/e/ec/ec-regs.htm#anchorWBS
  - WBS for PROMIS January 1997
- HTRW CX - http://www.environmental.usace.army.mil/

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HTRW Cost Engrg - Internet Resources

- HCAS - http://www.environmental.usace.army.mil/ec2/
- Report on Treatment, Storage, & Disposal Facilities (TSDF) for HTRW http://www.environmental.usace.army.mil/library/pubs/tsdf/tsdf.html
  - This report is designed to provide cost engineers with valuable source information regarding charges associated with the disposal of RCRA Subtitle C hazardous wastes. Included with the report are subject narratives, tables and figures, and contact details.
- Remedial Action Cost Engineering Requirements (RACER) software http://earthtech.talpart.com/products/racer/index.html
- Construction Cost Engineering Instructions Manual http://www.hq.usace.army.mil/cemp/e/ec/ec-regs.htm

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- Guide to Preparing Remedial Action Reports of Cost and Performance http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep1110-1-19/toc.htm
- Guide to Developing Feasibility Study Cost Estimates http://www.hq.usace.army.mil/cemp/e/ec/ec-regs.htm#anchorER under the header “Environmental Cost Estimating Guide”
- MCACES MII - http://www.hnd.usace.army.mil/traces/MII/
- MCACES Gold HTRW Databases available on TRACES website ftp://www.hnd.usace.army.mil/traces/HTRW/HTRW
- Remedial Action Work Breakdown Structure (RA WBS) and Operation and Maintenance Work Breakdown Structure (OM WBS) February 1996 http://www.environmental.usace.army.mil/info/technical/cost/costtool/costtool.html

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HTRW Cost Engrg - Internet Resources

- DERP Mgmt Guide: http://www.dtic.mil/envirodod/Policies/DERPMgt/DERP_MGT_GUIDANCE_0901.pdf
- CTC Instructions:
  - http://www.environmental.usace.army.mil/info/technical/cost/costpp/costpp.html
- HTRW Productivity Study:
  - http://www.environmental.usace.army.mil/info/technical/cost/costprod/costprod.html
- CostRisk:
  - ftp://www.hnd.usace.army.mil/TRACES/Cost_Risk/
- HTRW Area Cost Factors:
  - ftp://www.hnd.usace.army.mil/TRACES/HTRW/New%20Folder%20(2)/